UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,658	12/21/2001	Kunijuki Kajita	L9289.01227	2181

24257 7590 04/05/2004	EXAMINER
STEVENS DAVIS MILLER & MOSHER, LLP	CHAUDRY, MUJTABA M

1615 L STREET, NW		
SUITE 850	ART UNIT	PAPER NUMBER
WASHINGTON, DC 20036	2133	13

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- Th MAILING DATE of this communication appears on the cover sheet with th correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _21 December 2001_.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _17,18,23,25,27 and 28_ is/are pending in the application.
   4a) Of the above claim(s) _19-22,24,26 and 29-33_ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) _17,18,23,25,27 and 29_ is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☒ Claim(s) _19-22,24,26 and 29-33_ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on _21 December 2001_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☒ None of:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. _____.
    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _4, 7_.

4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _13_.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

A restriction requirement was made on Wednesday, March 24, 2004 with Applicant's

Attorney, James E. Ledbetter (202-408-5100). Examiner hereby makes acknowledgement of

Applicant's oral election of Group I, which include claims 17, 18, 23, 25, 27 and 28 and are

classified in class 714/758. Applicant is also reminded that nonelected claims of Group II, which

include claims 19-22, 24, 26 and 29-33 and are classified in class 714/755, must be cancelled in

subsequent communication. Claims 19-22, 24, 26 and 29-33 are withdrawn from consideration.

(37 CFR 1.144) See MPEP § 821.01. Furthermore, as a note of reference claims 1-16 were

cancelled in preliminary amendments (See paper Nos. 5 and 8).

Drawings

The drawings are objected to because:

- Figure 5 should be designated by a legend such as --Prior Art-- because only that which

    is old is illustrated. See MPEP § 608.02(g). The Examiner would like to point out that

    the Applicant has discussed this Figure in the "Background Art" and therefore it should

    be labeled as such.

A proposed drawing correction or corrected drawings are required in reply to the Office action to

avoid abandonment of the application. The objection to the drawings will not be held in

abeyance.

Specification

The disclosure is objected to because of the following informalities:

-   On page 3 of the specification, in lines 27-28 the phrases "…inventor has come up with

    the" and "…by discovering…" should be omitted since it is commonly understood and

    therefore not necessary.

-   On pages 5 and 11, the terms "Embodiment 1" and "Embodiment 2" are not needed to be

    in parentheses.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966),

that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 17, 18, 23, 25, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kato (USPN 5844918).

As per claims 17 and 27, Kato substantially teaches (title and abstract) an error correcting

code including basic data and a BCH-based parity code appended thereto is divided into smaller

packets. An error detecting code is appended to each of the thus-divided packets, so that

transmission basic data is formed. When the transmission basic data is received, the basic data

and a BCH-based parity code are derived from the transmission basic data. Error correcting is

carried out with respect to the overall transmission basic data. An error detecting operation is

carried out with respect to each packet using the error detecting code. If a packet is found to

contain errors, a request for retransmission of that packet will be sent to the sending side. Kato

teaches (col. 16, lines 39-67) a digital transmission method for sending a digital signal

comprising: a division step of dividing an error correcting code which includes basic data and a

parity code, into smaller data segments; an error detecting code addition step of appending an

error detecting code to each of the data segments divided in the division step; a transmission step

of sending the data segments complete with the error detecting code on a packet-by-packet basis;

and a retransmission step of retransmitting a requested data packet in response to a

retransmission request of the data packet from a receiving side. This procedure in shown by

example in Figure 5, wherein the input terminal 10 of the data transmitter A receives the basic

transmission data AD (see FIG. 5A), and the received basic transmission data is sent to the

packet assembly circuit 12. The basic transmission data AD has already been changed to a BCH

code by addition of a BCH-based parity code to the basic data BD as a result of the FEC

operation. The basic transmission data AD is divided into data segments by the segmentation

circuit 14 of the packet assembly circuit 12 so that they can be assembled into packets, as shown

in FIG. 5b. The error detecting code addition circuit 16 appends the CRC code to each data

segment, as shown in FIG. 5c. The header addition circuit 20 appends a packet header to the

data segment complete with the error detecting code, whereby a transmission data packet is

assembled, as shown in FIG. 5d. The thus-assembled transmission data packet is stored in the

data memory 22 and sent to the data receiver B via the transmit/receive circuit 24.

Kato does not explicitly teach a concatenating unit that concatenates each of the data

blocks having the CRC as stated in the present application.

However, the Examiner would like to point out that Kato teaches in Figure 5B to divide

the basic data, which is analogous to transport blocks of the present application. CRC is then

appended to each of the data blocks. Although Kato does not explicitly teach to concatenate all

of the CRC data blocks, he does show a data memory (Figure 4, Reference #44), which is used to

store the transmitted packets in case of a request for retransmission. Therefore, it would have

been obvious to one of ordinary skill in the art at the time the invention was made to add a

concatenating unit to concatenate the CRC data blocks. This modification would have been

obvious to one of ordinary skill in the art because one of ordinary skill in the art would have

recognized that by using a concatenating unit to concatenate the CRC data blocks would improve

on packet synchronization during transmission.

As per claims 18 and 28, Kato substantially teaches, in view of above rejections, (Figure

5 and col. 9, lines 10-37) the input terminal 10 of the data transmitter A receives the basic

transmission data AD (see FIG. 5A), and the thus-received basic transmission data is sent to the

packet assembly circuit 12. The basic transmission data AD has already been changed to a BCH

code by addition of a BCH-based parity code to the basic data BD as a result of the FEC

operation. The basic transmission data AD is divided into data segments by the segmentation

circuit 14 of the packet assembly circuit 12 so that they can be assembled into packets, as shown

in FIG. 5b. The error detecting code addition circuit 16 appends the CRC code to each data

segment, as shown in FIG. 5c. The header addition circuit 20 appends a packet header to the

data segment complete with the error detecting code, whereby a transmission data packet is

assembled, as shown in FIG. 5d. The Examiner would like to point out that at least one of the segmented data blocks in Figure 5D has less data than the other data blocks. Subsequently, the assembled transmission data packet is stored in the data memory 22 and sent to the data receiver B via the transmit/receive circuit 24.

As per claims 23 and 25, Kato substantially teaches, in view of above rejections, (Figure 4) the system and method digital data transmission to be for a communications system which obviously encompasses a mobile station and a base station.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kato teaches a method and apparatus for forward error correction in a digital communication environment. Kato teaches an error correcting code including basic data and a BCH-based parity code appended thereto is divided into smaller packets. An error detecting code is appended to each of the thus-divided packets, so that transmission basic data is formed. Applicant is further invited to read/review additional pertinent prior arts included herein.

Any inquiries concerning this communication should be directed to the examiner, Mujtaba Chaudry who may be reached at 703-305-7755. The examiner may normally be reached Mon – Thur 7:30 am to 4:30 pm and every other Fri 8:00 am to 4:00 pm.
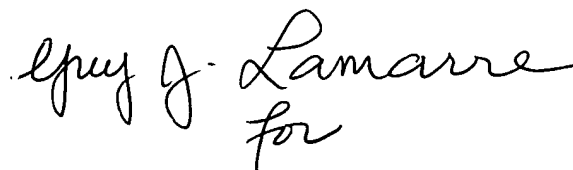
If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Albert DeCady at 703-305-9595. The fax phone number for the organization where this application is assigned is 703-746-7239.

Any inquiry of general nature or relating to the status of this application or proceeding

should be directed to the receptionist at 703-305-3900.

Mujtaba Chaudry
Art Unit 2133
March 25, 2004

Albert DeCady
Primary Examiner